Telecommunications Development in Indonesia: *At a Crossroads*

by

Andrew J. Kraisinger

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Executive Summary

Indonesia's state dominated, telecommunications industry has gradually opened up in the last five years to include more private sector participation. These changes have accompanied efforts to restructure P.T. Telkom (Telkom), the state-owned, domestic telecommunications provider into a corporate entity. Corporatization is one of many on-going steps to make Telkom a more effective and profitable enterprise, while privatization is a possible long-term outcome.

In the meantime, P.T. Indosat (Indosat), the government-controlled, international telecommunications provider, recently sold 35% of its equity in an international stock offering in October 1994. Ongoing efforts to prepare Telkom for eventual privatization hold broader significance for opening up the telecommunications industry to more private competition, and in turn, for Indonesia's broader economic reforms now underway for nearly a decade. Government efforts to reshape the telecom industry and privatize Telkom aim not only at improving basic economic infrastructure, but at demonstrating the value of privatizing state-owned companies and liberalizing protected industries in the wider economy.

Indonesia has made some progress in improving its telecommunications infrastructure, but the lack of adequate telecommunications continues to hinder economic growth. Although the pace of telecom expansion and the scope of private participation in the telecom industry has increased with the start of the latest five year national development plan, Repelita VI (1994-1999), even larger increases in projected demand threaten to overwhelm these efforts. The appropriate scale, scope and process of Indonesia's telecom policy direction remains an open issue in a politically sensitive sector. Any restructuring of the telecommunications industry presents multiple conflicts with the aims of Indonesia's economic policy makers,

domestic business groups and other influential political actors. While physical and geographic factors pose challenges to telecommunications development in Indonesia, issues of political control, financial limitations and human resource constraints loom as more paramount concerns.

Indonesia has several alternatives for restructuring its telecommunications industry. Increasing private involvement and competition in the industry holds the highest potential to more rapidly expand the scope and quality of telecommunications. Even though Indonesia faces financial and human resource constraints, international telecommunications firms and investors stand ready to play a fundamental role in supporting more rapid telecom expansion. The resulting increase in private and foreign competition in the industry, however, will require more extensive regulation to ensure public access to reliable and affordable telecommunications.

This paper outlines the major challenges and alternatives for Indonesia's telecommunication development in four parts.

- First, the major challenges Indonesia faces in developing its telecom infrastructure are analyzed.
- Second, the projected demand for telecom services is assessed in light of Indonesia's current efforts to gradually increase private participation and competition in the industry.
- Third, the options for restructuring Indonesia's public telecom services are examined for their potential to rapidly expand the accessibility, quality and affordability of telecom services in light of domestic resources and constraints.
- Last, the conclusion assesses the Indonesian path to restructuring the telecom industry, along with the need for developing a strong regulatory and policy framework to promote more private participation and competition.

I. Challenges of Telecom Development in Indonesia

Indonesia's geographic, political and economic characteristics pose special challenges for developing a seamless and ubiquitous public telecommunications network. Most of this burden falls to state owned, P.T. Telkomunikasi Indonesia (Telkom), the dominant provider of domestic telecommunications (telecom) services in Indonesia. P.T. Indosat (Indosat), acts as the main international telecom service provider in Indonesia, but has recently become involved with providing domestic services. Indosat is also majority owned by the state, but has been able to keep up with demand for international voice services with the benefit of lucrative international service revenues. Telkom, on the other hand, holds a broader public telecommunications service mandate, but faces limited financial, human and technical resources. If Telkom and other newly established telecom providers are to expand the capacity, coverage and quality of the public telecommunications network, they must overcome the challenges of Indonesia's geography, economy and national development process.

I. 1. Geography and Demographics

Indonesia has more than 13,000 islands spread out over an geographic area approximately as wide as the continental United States. Although Indonesia's islands are widely dispersed, more than 60% of the country's population is concentrated on the island of Java. Telkom faces rising demand for basic and advanced telecommunications services from dense pockets of population in Java, especially in the metropolitan area surrounding Jakarta. At the same time, Telkom also has a large public service responsibility to provide public communications services across the largely rural archipelago, including all of its remote corners.

Despite the rapid economic development centered in Java, Telkom has made an effort to provide basic telephone access across the archipelago with service to governmental administrative centers as a priority. All 27 of Indonesia's provincial capitals have long been connected to the national network since the launch of Telkom's Palapa satellite system in 1976. Connecting the next layer of government administration, however, took much longer. Indonesia's 243 regions (or counties in the 27 provinces) were connected by December 1991.[1]

As with these provincial regions, the next lower levels of governmental administration (*kecamatan*), are also sometimes located in remote and difficult to service areas. Current efforts are being directed to connect all of the *kecamatan* (municipalities or townships) in the regions with automatic telecommunications in the next several years.[2] Extending connectivity to the centers of the lowest level of government administration, the *desa* or village remains a difficult task. The area of *desa* may vary from as little as ten square kilometers to more than 200 square kilometers. Desa may also contain many small settlements or kampung in barely accessible terrain such as dense jungle, rugged mountains or spongy swamps.

Along with the effort to expand communications for Indonesia's government administration, Telkom has attempted to increase telephone subscriber density and to simultaneously improve service quality. In the last decade, Indonesia has increased the number of telephone lines available by four times from 500,000 in 1983 to approximately two million by end of 1993. Most of this growth has occurred in the last five years. Approximately 600,000 new lines were installed in 1992

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[1] Peranginagin, Remedi, "The Indonesian Experience in Rural Telecommunications", In Proceedings of the World Telecommunication Forum Technical Symposium, Singapore, May 17-22, 1993, Page 34.

[2] By December 1992, only 714 of the 3636 kecamatan had automatic exchanges. 1510 kecamatan had manual telephone exchanges. Meanwhile, 1412 kecamatan had not yet been connected to the national network. Peranginagin, Remedi, "The Indonesian Experience in Rural Telecommunications", In Proceedings of the World Telecommunication Forum Technical Symposium, Singapore, May 17-22, 1993, Page 34.

compared to only 70,000 in 1987. Telkom added approximately 800,000 new lines in 1993 and has targeted at least one million additional lines annually as it goes forward.[3]

This rapid growth in line capacity has helped nearly double subscriber density levels from 0.44 lines per 100 inhabitants in 1987 to around 1.1 lines per 100 inhabitants by the end of 1993.[4] With a large population of more than 180 million, Indonesia must add lines at an even more rapid rate than in the past, if it is to approach a medium density level of 10 phones per 100 inhabitants in the next two decades. In comparison, Indonesia's neighbor, Malaysia, achieved more than 10 lines per 100 people by 1992, while OECD countries and some newly industrializing countries, such as Singapore, generally exceed high density levels of 30 or more phones per 100 inhabitants.[5]

I. 2. Uneven demand creates conflicting priorities

As Indonesia's primary domestic telecommunications service provider, Telkom faces uneven demand for basic and advanced telecommunications services across varied customer segments and geographic regions. In rural areas across Indonesia, Telkom's main mission is to rapidly expand overall line densities and improve the quality of basic telephone services. Despite its limited resources, Telkom must also quickly satisfy pockets of demand for advanced telecommunications services or risk losing lucrative profit-making opportunities to private alternatives, especially in Indonesia's cities.

To successfully deliver more profitable, advanced services to commercial customers, Telkom must create seamless links with the existing public telephone

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[3] Internal P.T. Telkom documents and interviews with Telkom planning personnel, 1993-94.
[4] Internal P.T. Telkom documents and Telkom Strategic Development Plan 1994, June 1994.
[5] Minges, Michael, World Telecommunication Development Report 1994 International Telecommunications Union, March 1994. pages A2-3.

network. As a result, much of Indonesia's initial telecommunications development has been concentrated on Jakarta and the surrounding area, where foreign and domestic investment in industry has been focused and where demand and congestion are strongest. For instance, 40 -50% of all telephone subscribers are concentrated in the Jakarta area.[6] By September 1993, the number of lines available in the Jakarta area more than doubled to 941,000 from 463,000 in 1989. 470,000 more lines were planned for installation in 1994.[7]

Although Telkom officials expect current demand in the Jakarta area to be met by the end of 1994, the quality of the Jakarta network has much room to improve. The successful call ratio in the Jakarta area dipped to 24% in 1993 compared to level of 50%-70% standard established by the International Telecommunications Union.[8] Telkom is currently upgrading the transmission and switching functions in the public network to allow it to flexibly take advantage of new telecommunications technologies, but the national successful call ratio stood at only 34% in 1993 compared with Telkom's goal of 45%.[9] These network performance measures indicate the difficulties that Telkom faces in expanding and modernizing the existing public telephone network across the country. Even in the most favorable circumstances, it is difficult to quickly implement advanced telecommunications services and simultaneously modernizing an antiquated public network. Telkom and Indonesia's other telecom companies face this challenge even though they have access to only limited human, technical and financial resources.

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[6] Telkom Strategic Development Plan 1994, June 1994, and East Asian Affairs, March 23, 1994.
[7] Ford, Maggie, "Indonesia's Telecom Market: From Disorder to Order" Business Times (Singapore) December 8, 1993, Page 20.
[8] Setiawan, Savitri, "Let Your Fingers Do the Walking", Indonesia Business Weekly, February 4, 1994, Page 16.
[9] McBeth, "Lining Up Investors", Far Eastern Economic Review; April 28, 1994, Page 50 and Telecominuque Asia, July 5, 1994, Page 5.

I. 3. Shortage of managerial and technical human resources

Indosat, Telkom, and other emerging telecom companies must improve their human resources and develop a more market oriented approach, if they are to successfully introduce advanced and basic services that meet customer needs. As a state-run company, Telkom must overcome past complacency and develop the human resources necessary to plan, operate, market and maintain advanced networks. Software development expertise, systems integration skills, operations support systems, network management, and overall project management experience are becoming essential in planning, developing and launching advanced services, such as credit card calling, universal access numbers and virtual private networks.

Even though line densities have increased and more advanced technologies are beginning to be deployed, Telkom productivity and revenue potential remains less than favorable. Of the almost 3 million lines Telkom officially had on its books at the beginning of 1994, only 1.9 million had been equipped with supporting facilities and actually sold to customers.[10] Accordingly, the Director General of Posts and telecommunications announced in February 1994 that Telkom would soon establish distribution networks for selling and delivering telephone services even before it constructed telephone exchanges.[11]

Telkom must raise its productivity levels if it is to effectively manage the more than 5 million lines in added capacity planned for the next five years. At the beginning of 1994, Telkom had approximately 40,000 employees or 30 employees/1000 lines, but aims to reduce the number of employees to 8/1000 lines

[10] Indonesia Business Weekly January 21, 1994, Page 34, and Ave, Joop, Minister of Post, Telecommunications and Tourism in Economist Conferences Roundtable with the Government of Indonesia, November 14, 1993, Page 102.
[11] Earl, Greg, "Indonesia Gets Connected" Australian Financial Review, February 7,.1994.

by 1998.[12] Even with this massive productivity increase, however, Telkom will lag behind world class productivity levels, such as the 3-4 employee/1000 line ratio commonly found in the Bell Operating Companies in the United States. As lines are rapidly added to the network, Telkom expects productivity levels to increase. The challenge will be to only slightly increase employee numbers while dramatically increasing workloads and responsibilities for individual workers.

Project management and marketing skills will increasingly become more crucial to reduce costs and provide more customer driven services as private competition increases. Telkom will be forced to provide significant levels of training to upgrade skills and replace some employees with more broadly experienced engineers and managers. Customer service and marketing have been singled out as priorities, but the company will be put to the test to develop the necessary skills in-house. Telkom will need to bring in fresh marketing and management talent from outside the company, but is handicapped in competing for a limited pool of business and marketing talent in the private sector. As a state-owned company, Telkom has difficulties in providing salaries competitive with the private sector and in differentiating salary levels on the basis of employee performance.

An implicit goal in the Indonesian government's moves to increase private sector participation in the telecom industry has been to build up business and telecommunications expertise in local private firms. The government and Telkom prefer to award contracts to local firms, but few domestic companies have the skills to make competitive proposals and bids on telecommunications projects in Indonesia. "The problem is that most Indonesian contractors are inexperienced in handling project tenders on the international market and are slow in responding to

[12] American Embassy, Jakarta, Market Reports, "Indonesia - Telecom Seminar" (sponsored by the Indonesian Telecommunications Society (MASTEL) and the World Bank), April 20, 1994.

such tenders", says Telkom President Director, Setyanto P. Santosa. "Until now, most of Telkom's projects were built by foreign contractors. This is not what we want. We want local contractors to participate in national telecommunications development."[13]

The most capable domestic candidates are Indonesia's large business conglomerates, who usually team up with foreign partners. These commercial groups are dominated by Chinese Indonesians or are headed by indigenous Indonesians, *pribumis*, often with personal or political connections to President Suharto and his family. For instance, the two of the largest non-Chinese business groups - Bimantara and Humpuss - are both headed by sons of Suharto. The award of lucrative telecommunications contracts or franchises, formerly the sole preserve of the state, usually raises political controversy in a country that prides itself on the calm surfacing of new policy initiatives.

Large conglomerates appear to be the domestic companies best able to forge partnerships and absorb foreign telecommunications expertise. Contracts awarded on the basis of preferential connections and protected markets, however, will ultimately raise the costs of telecommunications services and slow their spread across Indonesia. The challenge for policy makers is to avoid political controversy, but still manage to tap and nurture the capabilities and resources of domestic firms, both state-owned and private, to compete in the telecommunications sector.

I. 4. Limited domestic financial resources

Indonesia lacks sufficient investment capital to self-finance rapid telecommunications expansion, and in turn, must look to international sources of capital. By Telkom's own estimates, the company expects to supply only 40% of

[13] Economic & Business Review Indonesia, "PT Telkom: Getting Ready for the Competition, December 11, 1993, Page 7.

the capital for the 3 million lines it plans to install in the 1994-1999 period. The remaining funds are expected to come from the World Bank, Asian Development Bank, and other sources.[14]

Despite the potential for the telecommunications industry to boost long term economic development, the need for international capital creates political and economic obstacles. Mixed views abound within Indonesia about diverting financial resources to infrastructure projects instead of manufacturing projects that provide more immediate job creation and export opportunities. With over 2 million new entrants to the labor market each year, Indonesian policy makers feel pressure to back visible job creation projects.[15]

Indonesia's foreign debt reached US$100 billion in 1995.[16] This debt raises concerns for managing Indonesia's current account and inflation levels when there are unpredictable shocks from outside the domestic economy. Oil and gas revenues now account for under 30% of export earnings compared to 80% in 1981, but sluggish oil prices have forced the government to clamp down on government spending in 1994-95. Shifts in foreign currency values, especially the appreciation of the Japanese Yen are also cause for concern as approximately 40% of Indonesia's foreign debt is denominated in Japanese Yen. Meanwhile, Indonesia's still considerable oil, gas revenues and international aid flows are mostly denominated in US dollars which have slipped 42% in value against the Yen since 1990.[17]

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[14] Telkom expects to able to contribute approximately 4 trillion Rupiah (U$1.8 billion) of the total 10 trillion Rupiah (U$4.5 billion) estimated to install 3 million lines or 40% of the 10 trillion Rupiah requirement. 2 million additional lines requiring another 5 trillion Rupiah (U$2.25 billion) are expected to be funded by private sector through Build Operate and Transfer projects. Of the total 5 million lines, Telkom will fund only around 27% (4 trillion of the 15 trillion Rupiah (U$7.75 billion) total requirement). World Bank Mission Aide Memoire, April 15, 1994, Page 16, and Economic & Business Review Indonesia, "Relying on Debts", December 11, 1993, Page 12.

[15] The Economist, "Boomtime", Indonesia Survey, April, 17, Page 7.

[16] Business Times (Singapore), "Bank Indonesia Admits Foreign Debt Tops U$100 Billion", April 14, 1995.

[17] The Economist, "Talking Dollar Blues", April 15, 1995.

While Indonesia's heavy foreign debt is narrowly under control, the country still must continue to generate growth in foreign exchange revenues through exports or face debt repayment problems. According to Indonesian economist Mohammed Sadli, Indonesia has to achieve exports growth of some 15% per year, otherwise a balance of payments crisis will occur because of the very large debt service payments.[18] Imports are essential to upgrading Indonesia's telecommunications and electric power infrastructure, but these imports also work (in the short run) against any foreign exchange gains made through exports. Foreign exchange allocated to telecommunications equipment imports also cuts down on the capital available to create domestic manufacturing jobs.

When Indonesia had to implement tough austerity measures to combat macro-economic instability in mid-1980s the government was commended by the international development community for its continued funding of development needs, especially in the areas of education and health. This sort of strategic policy and implementation is essential to increase private and international participation in Indonesia's telecommunications development. For instance, Telkom would need approximately US$ 7-8 billion to finance the 5 million line expansion planned for the next 5 year development plan (Repelita VI) beginning in 1994. Ironically, the Indonesian Finance Minister disclosed in February 1994 that nearly the same amount of public funds were tied up in bad loans by Indonesian government-run banks.[19]

The challenge for improving the situations in the banking and telecommunications sector is much the same: more private sector participation, less

[18] By February 1994, debt payments were already absorbing 30% of the value of exports. Sadli, Mohammad, "Yen Oscillations Won't Hurt Too Much", Indonesia Business Weekly, February 25, 1994, Page 14.
[19] McBeth, John, "Into the Limelight", Far Eastern Economic Review, March 3, 1994, Page 55.

patronage influence and stronger regulation of industry players. Indonesian policy makers recognize the value of competition, but attention is sometimes narrowly focused on settling development projects on Indonesian terms only. For example, the state-owned electricity company held up settling terms with private contractors on a large electricity generation project (Paiton) for more than two years because the company wanted to set artificially low prices for electricity. Likewise, Telkom became embroiled in a lengthy delay in tendering (Sistem Telekomunikasi Digital Indonesia - 2 or STDI-2) contracts in 1988-91. After three years of political maneuvering, the government awarded equal contracts to AT&T and NEC in an effort to appease US and Japanese government lobbying efforts.[20]

Telkom managers and government regulators have to be realistic in pricing projects, determining project performance goals and setting conditions for local participation. Otherwise, telecommunications companies with more advanced technology and financial resources will opt out of the competition and leave Indonesia with less capable and effective choices. Indonesian officials need to offer pragmatic incentives such as progressive revenue sharing or market access in return for exceeding requirements for technology transfer, local sourcing, or local manufacturing. Private investors and international telecommunications companies, meanwhile, must keep in mind that any proposals for improving Indonesia's telecommunications environment should be backed by a significant portion of the requisite financing. Local Indonesian telecommunications officials have a huge planning and management task facing them and have few resources for screening

[20] Under pressure from US and Japanese government lobbying, the STDI-2 program was doubled in size and AT&T and NEC each were awarded a contract for 350,000 lines. AT&T and NEC were also required to work with companies connected to Suharto children to locally manufacture 150,000 lines under the contract. See Appendix 1 for more details. Schwarz, Adam, et. al. "Home Before Abroad", Far Eastern Economic Review, June 4, 1992, Pages 43-46. See Appendix 1 for more details.

proposals with uncertain funding possibilities or that ignore the country's economic development priorities.

I. 5. Development of a clear and effective regulatory framework

Further progress on increasing the level of private sector participation to finance telecom development will depend on reducing the influence of vested interests and strengthening the regulation of industry players. Effective regulation can promote competition, protect the public interest and provide incentives for private investors. Establishing a clear and effective regulatory framework, however, will require broad-based consensus building in the Indonesian government on the importance of telecommunications development to economic growth and political stability.

Indonesian businessmen and companies say the lack of an adequate national telecommunications network costs the economy $ 2.5 billion per year in lost business and in additional operating costs.[21] Yet, according to current the President Director of Telkom, telecommunications is not a national priority: "There should be a national consensus which regards telecommunication as an important thing. For example, if the ministries of transportation, trade and industries and other ministries felt telecommunication were important, telecommunication would become a national priority. When telecommunication becomes a national priority, it will also become a financial priority, an import duty priority. But we have not come to that point yet. So far telecommunication is important only for the Ministry of Tourism, Post, and Telecommunications."[22]

If Indonesia wishes to sustain economic growth, it may have no choice but to make rapid telecommunications development a national priority. The government

[21] East Asian Affairs, March 23, 1994.
[22] Economic & Business Review Indonesia, "PT Telkom: Getting Ready for the Competition, December 11, 1993, Page 7.

must summon the political will to provide effective regulation that encourages efficient practices and competitive operators. Merely opening up the market to select private parties and arranging external financing through promises of broad monopoly franchises will not meet the country's needs for affordable, advanced and reliable telecommunications services.

Telkom together with Indosat and other private operators are already planning to implement new advanced wireless technologies to compensate for insufficient or inadequate wireline facilities. These fixed wireless telephone services will substitute for local fixed lines to relieve pent-up demand in high density, urban areas. The implementation of these new wireless technologies by multiple operators will not only require vigilant allocation of radio frequency assignments, but also a regulatory approach that balances the interests of operators and customers.

Additionally, a comprehensive national policy is necessary to coordinate the delivery of new advanced telecommunications services, such as ISDN. Telkom plans to start implementation of narrowband ISDN services in current the 1994-1999 planning period to provide business customers with higher quality voice and data communications. These potential customers will be lost to competitors or left with inadequate service, however, if ISDN end user equipment is not available or competitively priced. The successful implementation of new telecommunications services will depend on a broad government effort to coordinate competitive market access, equipment and service availability, and reasonable tariffs. The challenge for the Ministry of Tourism, Post, and Telecommunications (MPTT) is to forge a national consensus among the government's various ministries on the needs and significance of its telecommunications development policies and regulations.

Some Indonesian government officials and political interests fear losing control of the development process by opening up a nationally strategic sector such

as domestic telecommunications. Effective regulation, however, can provide performance incentives to private firms and still give the government sufficient control of the industry. The recognition of telecommunications as a fundamental infrastructure for promoting economic and social development is necessary to improve the scale, quality and scope of telecommunications services in Indonesia.

II. Telecom Progress, But Even Greater Demand

II. 1. Progress in the face of rising demand?

Indonesia has made significant progress in expanding the capacity and quality of its telecommunications network in the last decade. More telephone lines were connected to the public telephone network in 1992 and 1993 than in the previous ten years. Telephone access for the general public has also improved with the establishment of privately run telephone centers, *Wartels* or *Warung Telefon*, that provide access to local and long distance telephone facilities in local neighborhoods. Access to telephones for people who do not have private telephones, however, remains limited. Indonesia had only 0.22 public telephones per thousand people in 1992 compared with an average of 5 public telephones per thousand people in high income countries, such as the U.S. or Japan. In the same year, Indonesia's neighbors Malaysia and Singapore had 1.84 public telephones per thousand and 10.13 public telephones per thousand respectively.[23]

Although the capacity and diversity of telecommunications services in Indonesia is increasing, the demand for telephone services is increasing at an even more rapid pace. Telkom estimates expect the demand for telephone service to

[23] Minges, Michael, World Telecommunication Development Report 1994 International Telecommunications Union, March 1994. pages A13-15.

reach over 8 million lines by 2000 and to exceed 16 million lines by 2010.[24] Telkom's goal is to add a million new lines a year for a total of approximately 7-8 million lines by the end of the Repelita VI planning period 1994-1999. In contrast, the Indonesia Telecommunications Society (*Masyarakat Telekomunikasi Indonesia* or *Mastel*)[25] estimates that Indonesia will need to install 13 million more line units in the next five years. Like the Telkom forecast, the Mastel estimates are based on the correlation between GDP per capita growth and telephone demand. If Mastel's estimate is correct, Indonesia will face a shortfall of eight million lines by 1999. Mastel has called for increasing private participation in infrastructure growth (i.e.. 75% private and 25% public instead of 40% private and 60% Telkom) to achieve a 25% annual growth in telephones lines over the period 1994-2019 for a total of 65 million additional lines.[26] This projection translates into the installation of about 2.7 million lines new lines annually for 25 years.

Telkom analysis of regional demand predicts that the bulk of telecom demand growth will remain in Java's urban centers, but network development in more rural areas remains a significant concern. As a result, Telkom has focused most of its network development activities in and around Jakarta where large business subscribers are located. Even though less than 30% of Indonesia's population lives in large cities, such as Jakarta, Surabaya and Bandung, about 80% of Telkom revenues come from less than 20% of its customers, who are almost exclusively large business subscribers.[27]

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[24] Telkom estimates based on demand studies carried out by the Japan International Cooperation Agency (JICA). "The Study of Telecommunications Network Development Plan For Repelita VI", JICA, November 1992 in Telkom Strategic Development Plan 1994, June 1994, Page II-5.

[25] Mastel is an ad-hoc group of government, academic, and business officials with significant interests in the Indonesian telecom industry. It was formed with encouragement from the Ministry of Tourism, Post, and Telecommunications in 1993 as a way to broader thinking on how to address Indonesia's telecom infrastructure and telecom industry structural issues.

[26] U.S. Embassy, Jakarta, Market Reports, March 17, 1994.

[27] Telkom market data and interviews with Telkom customer service (marketing) managers, August 1993 and Telkom Strategic Development Plan 1994, June 1994, Pages II-4-9.

Although Telkom has made some progress in extending coverage of the telephone network to the remote parts of Indonesia, Telkom's 1994 Strategic Development Plan aims first to satisfy the demands of business customers in urban areas where Telkom can get the best return on its investment. The Plan also focuses on balancing the demand for telephone service between urban and suburban/rural areas, but more than 3500 of the 4500 *kecamatan* (townships) are scattered in remote service areas with difficult terrain.[28] Despite Telkom's attempts to balance profitability goals and rising urban demand with rural telecom needs, the gap in telecom accessibility between Indonesia's large cities and more rural areas will grow larger before its gets smaller. Likewise, the gap between overall telephone demand and capacity will only grow larger, unless Indonesia's government accelerates efforts to develop its public telecommunications network.

II. 2. Industry restructuring efforts take gradual approach

Recognizing the need to expand the telecom sector, Indonesia has taken three general approaches to restructure the industry since the late 1980s:

i. Gradual reform of government-run telecom companies into corporate entities
ii. Incremental efforts to increase private participation in the industry
iii. Cooperative ventures with private firms and limited competition
    a) Build Operate and Tranfer Agreements (*Kerja Sama Operasi*)
    b) Joint Venture Agreements

II. 2. i. Gradual reform of government-run telecom companies into corporate entities

In 1991 the Indonesian government began to restructure its public domestic telecommunications company to make it more responsive to market demands and provide more accountable financial management.[29] Reorganization efforts have focused on improving profitability, marketing capabilities and human resources. For

[28] Telkom Strategic Development Plan 1994, June 1994, Pages I-1.
[29] In 1991 the public telecommunications company in Indonesia, Perusahaan Umum Telekomunikasi Indonesia (Perumtel), was transformed from a public corporation to a limited liability company, P.T. Telekomunikasi Indonesia (Telkom) with the state retaining full ownership.

example, surplus real estate and assets not needed by core operations are being divested. Telkom recognizes it must respond better to customer needs and has reached out to international firms, such as Singapore Telecom, for help in developing staff marketing and project management skills through training programs.

P.T. Indosat, meanwhile, has always been considered as a more professionally managed organization. Indosat was established in a joint venture with the International Telephone & Telegraph Corp. (ITT) in 1967 to provide international telecommunications. The Indonesian government bought out ITT in 1980, but Indosat continued to be run more along the lines of a private corporation. Consequently, in 1994 the government encouraged Indosat to pioneer the use of international equity markets by Indonesian companies. Indosat concluded a successful public equity offering of 35% of its shares for U$1.1 billion in October 1994.[30]

Likewise, P.T. Industry Telekomunikasi Indonesia (Inti), a state-owned telecommunication manufacturer, faces pressure to become more competitive as the government has allowed more manufacturers to enter the industry.[31] In 1993 NEC and AT&T were established in private ventures linked to the Suharto family as the result of negotiations to supply Telkom STDI-2 contracts.[32] Similarly, Alactel and Hughes Network Systems were introduced in 1994 as telecom equipment suppliers to Telkom joint ventures with P.T. Satelit Palapa Indonesia (Satelindo) and P.T. Radio Telekomunikasi Indonesia (Ratelindo).

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[30] Chia, William, "Impeccable Credentials", Business Times (Singapore), April 22, 1995.
[31] P.T. Inti manufactures telephone switches and adapts telecommunications equipment for Indonesian conditions with Telkom as the primary end user. The company has been manufacturing telecom equipment in collaboration with Siemens since 1982 and were jointly awarded the STDI-1 contract in 1985.
[32] NEC was partnered with Elektrindo Nusantara, 45% owned by the Bimantara group controlled by Suharto son, Bambang Trihatmodjo. AT&T was appointed to work with Citra Telekomunikasi Indonesia controlled by Suharto's eldest daughter. See Footnote 20 and Appendix 1 for more details.

II. 2. ii. Incremental efforts to increase private participation in the industry

Initial efforts to tap private resources to provide telecommunications services and infrastructure in Indonesia began with small scale joint ventures, licensing arrangements and revenue sharing schemes for value-added services. For example, multiple private firms have been providing cellular and other wireless services on revenue-sharing basis with Telkom since 1986. With the passage of a new telecommunications law in 1989, the revenue sharing concept expanded to include BOT (build, own and transfer) projects, also called PBH (Pola Bagi Hasil) projects.[33] Private companies were required to finance and install telephone lines and then allow Telkom to operate them. For a specified period, typically 6-9 years, the investors would share the revenue from the lines. At the end of the stipulated period, ownership of the lines and/or equipment would revert to Telkom.

Telkom has also instituted revenue sharing agreements with multiple companies for mobile cellular telephone, VSAT data communications, and paging services across Indonesia. For mobile cellular telephone services, private companies have served as investors, while Telkom has operated the cellular services along similar lines as the PBH projects.[34] Data communications and paging services, however, have been operated by the private companies. Telkom typically has taken a minority share of the revenues in exchange for the franchise to operate the services.

II. 2. iii. Cooperative ventures with private firms and limited competition

a) Build Operate and Transfer Agreements *(Kerja Sama Operasi)*

In the spring of 1993, the government authorized private operators to own and operate basic telecommunications networks, facilities, and systems under

[33] See Appendix 1 for more details.
[34] See Appendix 3 for more details.

revenue sharing and joint venture agreements with state-owned companies. This shift to wider private participation was motivated in part by the poor reception of larger scale revenue sharing arrangements (PBH-Skala Besar or Large Scale PBH) initiated in 1991 to help meet Telkom's goal of installing at least one million lines annually. The Large Scale PBH program was designed to attract the participation of foreign telecommunications companies in cooperative arrangements with local telecommunications companies.

International telecommunications firms have not been eager to accept the piecemeal and limited terms offered under past PBH revenue sharing schemes. Previously private companies were only allowed to build basic telecommunications facilities, but Telkom had to be the sole operator. In this new phase of liberalization, private companies can apply for permission to install and operate basic telecommunications services in specific geographic areas under a new scheme called *Kerja Sama Operasi* (KSO or Joint Operation Scheme.)

With the KSO scheme, Telkom intends to promote the installation and operation of two million lines by 1999 in five projects that would involve installing up to 500,000. Telkom, meanwhile, has planned to add another three million lines itself over the five year development plan period which started in 1994. Indonesia's biggest cities and most potentially lucrative areas, Greater Jakarta (West Java) and all of East Java including Surabaya, have been reserved for Telkom to install its three million lines. Meanwhile, KSO projects have been offered for the relatively less economic developed areas of: Sumatra, Central Java, West Java, Kalimantan and East Indonesia.[35]

[35] Business Asia "Indonesia Tries Private Telecoms", May 8, 1995, Page 1-2.

In the original PBH schemes, private companies were required to finance and install lines, then allow Telkom to operate them. The private companies were only passive investors receiving periodic payments once the lines were installed. With the new PBH schemes, private companies can now own and operate telecom facilities under investment which enhances their profit making opportunities in these revenue sharing projects. Instead of relying on Telkom to operate the facilities and receiving a percentage of the income, private companies now have an incentive to actively market and improve the telecommunications services as well as make the operations more cost efficient. As in most countries, however, tariff setting remains the preserve of the government.

The KSO scheme appears to be a dramatic step forward for private participation in expanding Indonesia's domestic telecom services, but like the Large Scale PBH program, the KSO projects have received only a lackluster response from local and international telecom firms. Although 11 groups have bid for the five KSO areas, the bidders say the KSO scheme does not offer sufficient incentives and operating freedom. As the KSO bidding process began in March 1995, bidders complained about too limited concession periods, unworkable requirements for managing existing Telkom staff and operations, and the lack of exclusive guarantees for new lines in targeted locations. They have placed bids just to stay in contention for future projects and if selected, they expect to negotiate better terms and conditions as the KSO process moves forward in 1995.[36]

The main stumbling block for the KSO scheme is financing and the associated concerns of pricing, operation periods and exclusive territories. An estimated U$ 2.5 billion in private capital is needed for the five KSO projects alone,

[36] Business Asia "Indonesia Tries Private Telecoms", May 8, 1995, Page 1-2.

not including the three million lines Telkom plans to install itself.[37] Without a basic regulatory framework, these KSO terms are risky uncertainties subject to change as political or economic conditions vacillate.

II. 2. iii. Cooperative ventures with private firms and limited competition

a) Joint Venture Agreements

Joint venture agreements, the other main avenue opened for private sector participation, have also been criticized for its political patronage features and lack of transparency. Two select private firms, Ratelindo and Satelindo, have been chosen to enter into joint ventures to own and operate basic and advanced services in cooperation with Telkom and Indosat without any public tenders. The Ratelindo and Satelindo awards are case studies into the current direction of government telecom policy to favor politically influential business figures and local *pribumi* (ethnic Indonesian) companies.[38]

PT Bakerie Electronics and Telkom formed a joint venture in August 1993, PT Radio Telekomunikasi Indonesia (Ratelindo), to install and operate digital fixed cellular phone lines in Indonesia's major cities. Ratelindo has contracted with Hughes Electronics to install 280,000 fixed cellular lines in the Jakarta area for approximately US$500 million.[39] PT Bakerie Electronics is majority owned by Bakerie & Brothers, one of Indonesia's leading *pribumi* conglomerates and has PTT Telecom Netherlands as a joint venture partner.[40] Telkom holds a minority share of 45% in Ratelindo even though the venture will engage in direct competition with Telkom for providing local voice communications services.

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[37] Sherer, Peter, World Bank Mission Aide Memoire, March 27-April 15, 1994. Page 2.
[38] See Appendix 2 for the market structure resulting from these and other recent awards of licenses/franchises.
[39] U.S. Embassy, Jakarta, Market Reports, April 20, 1994.
[40] Bakerie Electronics sold 30% of its equity for U$90 million to PTT Telecom Netherlands. in November 1994 ostensibly to obtain access to telecommunications expertise.

Similarly, PT Satelit Palapa Indonesia (Satelindo) is another local *pribumi* business with special connections which has managed to obtain multiple licenses for both international and domestic communications. Satelindo, 60% owned by PT Bimagraha Telekomindo, has been designated as the operator of Indonesia's Palapa satellite system. PT Bimagraha Telekomindo is a business venture involving Bambang Trihatmodjo's (President Suharto's second son) Bimantara Citra Group, Bambang's wife and two business partners with army pension fund connections.[41] Telkom formerly was the sole operator of the Palapa satellite system and now owns 30% of PT Satelindo, while Indosat owns 10%. PT Satelindo will own 86% of the next Palapa satellite to be launched, Palapa C1, while another private Indonesian satellite operator, Pasifik Satelit Nusantara (PSN), will own the remaining 14%.

PSN, also 30% owned by one of Bambang's related companies, has an agreement to acquire Palapa satellites near the end of their operating lives over Indonesia. PSN moves the satellites to a position over the Pacific Ocean and operates them in an inclined orbit that extends their useful lives to provide international satellite communications. Telkom contributed the Palapa B1 satellite to PSN in December 1991 in return for a 40% stake in the venture. It has been reported that PSN has also been authorized to participate in a pan-Asian, satellite based, mobile phone system targeted at businesses in the region.[42]

Satelindo is also involved in the lucrative digital cellular service market. The company received permission in 1993 to service 18 major Indonesian cities, including Jakarta. Satelindo has selected Alcatel to install a GSM digital cellular

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[41] Bambang's PT Elektrindo Nusantara holds 30% of PSN, while the remaining 30% is held by two Indonesian entrepreneurs Adi Adiwoso and Iskandar Alisjahbana. Schwarz, Adam, "A Giant Stride", Far Eastern Economic Review, October 7, 1992, Page 83.

[42] This U$900 million venture also involves Singapore Telecom and Hughes Communications and expects to start operations in 1998. Jacob, Paul, "Sing$1.3b Venture for Satellite Phone System," Straits Times (Singapore), August 6, 1994, Page 1.

network that will eventually have capacity for 350,000 subscribers. Prior to this network equipment and supplier choice, analog AMPS had been recognized as the national cellular standard. Satelindo, however, was able to out-maneuver opposition from government telecom network planners to get the new GSM cellular standard and equipment vendor approved.[43] Previously, the switching equipment market had been limited to three vendors - AT&T, NEC & Siemens, in order to keep proprietary transmission and switching technologies to a manageable number and provide a forum for managed competition. Alcatel, however, has been allowed to enter the market despite objections of the Ministry of Science and Technology (BPPT) headed by the politically influential J.B. Habibie.[44]

Satelindo is one of two licensed digital cellular operators. The other license is held by a joint venture between Telkom and Indosat, named Telkomsel. Despite the Telkom and Indosat equity holdings in Satelindo, Telkomsel will compete with Satelindo. Likewise, Satelindo will compete with Indosat by virtue of its additional license to operate international telecom services. It is not clear how this tangled web of conflicting interests will compete against each other, but past practice indicates that the direct benefits of competition are unlikely to appear anytime soon.

With the establishment of the new KSO schemes and new operators such as Ratelindo and Satelindo, the Indonesian government appears to be taking a more progressive stance toward increasing private participation in providing public telecom infrastructure and services.[45] The KSO, Ratelindo and Satelindo examples show, however, that the government is not ready to open the industry to full-fledged

[43] Indonesian telecom planners objected to the GSM system as a national standard because it has higher costs given it would require 4-10 times as many base stations as analog systems currently in use in Indonesia. More base stations mean more fixed costs even if traffic in a particular cell is low, such as in Indonesia's vast rural areas. Telkom Strategic Development Plan, June 1994, Page III-9.

[44] Interviews with international telecom equipment suppliers active in Indonesia, April 7, 1994.

[45] See Appendix 1 for the Indonesian telecom market structure as of May 1995.

outside competition. Ratelindo and Satelindo have moved private participation in the industry to a new level, but these actions are only gradual restructuring of the industry compared to more radical proposals to break up Telkom into a series of separately owned, fully competing companies.

Telkom, Indosat, Ratelindo and Satelindo appear to share the government's enthusiasm for expanding telecom capacity and service diversity, but they do not always share the same vision for achieving these broad goals. Telkom and Indosat, for instance, have been directed to take minority stakes in competitors (Ratelindo and Satelindo), but these scarce investment funds could have been put toward more strategic business goals. Meanwhile, Indosat has held a lucrative monopoly on international services until the recent entry of Satelindo into this market. Indosat is also interested in competing with Telkom and others for domestic business subscribers. Telkom readily accepts the prospect of competition for its most profitable business subscribers, but would benefit from having a freer hand in structuring its operations and investments around its core strengths. The competing political interests behind these four main telecom players will have a large impact on the evolving shape of public telecom services in Indonesia and will influence the pace and scope of further industry liberalization.

III. Restructuring Indonesia's Public Telecom Services

Given rising demand for diverse telecom services and the unmet challenges of providing affordable access to basic telecom service, Indonesia must move beyond the incremental approach of the past to fundamentally restructure the telecom industry. The trend for liberalization and privatization in the world telecom industry offers a variety of examples for restructuring Indonesia's telecom industry. These alternatives are seldom mutually exclusive, but rather are often combined to

address prevalent issues of financial and human resource constraints along with local country needs for maintaining control and stability in the industry. Three general options are evaluated below in the context of the current Indonesia telecommunications environment.

III. 1. Centralization

In this approach, Indonesia would establish a strong central holding company (e.g. Telkom) to manage and coordinate subsidiaries or affiliates to maintain and expand seamless network services. The centralization option has taken different forms in the past depending on local country economic and political preferences. Outside the U.S., national governments traditionally have structured the Post, Telephone and Telecommunications/Telegraph (PTT) functions in a single entity, which the government usually owns. Related industries, such as telecom equipment suppliers usually find themselves dependent on a state PTT monopoly for technical standards, pricing and most other policies. Consequently, the PTT or state monopoly telecom companies often act as de-facto industry regulators. Similarly, Telkom and Indosat have played a significant role in regulating their respective telecom sectors in the last three decades.

As an alternative to the present situation, Indonesia could adapt the pre-1986 U.S./AT&T model to local conditions. Telkom could be developed into a strong central holding company to provide integrated planning of telcom infrastructure projects executed by various private parties. In this U.S./AT&T and in most other PTT models, domestic and international services are also combined into one entity to facilitate subsidization of domestic networks. Indonesia has separated domestic and international service companies, but with effective regulation in place, cross subsidy can remain a viable strategy to fund the expansion of local networks into less profitable (often rural) areas. Given that Indonesia currently lacks a

suitable regulatory body, however, Indosat and Telkom staff would have to continue to do double-duty as industry regulators and policy planners.

The centralization approach is advantageous for telecommunications development in situations where the government has a strong commitment to the sector and can provide accelerated investment. The development of Indonesia's Palapa satellite system provides a good example. Strong financial commitment from the government was essential in arranging the international aid and loans for the satellite project to succeed. High level government support also cleared organizational and political barriers that might have derailed the project despite the benefits to Indonesia's national development interests.

Similarly, China and Turkey have experienced rapid network development in recent years under PTT structures that have had strong, government-backed, investment programs. This same PTT model, however, also remains prevalent in many developing countries where the lack of government commitment contributes to low telephone density rates, long waiting lists and poor telecommunications overall.[46] Indonesia appears to have moved beyond this centralized structure by establishing both Telkom and Indosat as semi-autonomous operating companies. This corporatization process aims at making the companies capable of raising capital, setting wages, and entering partnerships with private companies, and is seen as a prelude to eventual privatization.

Despite past and planned equity offerings, both Telkom and Indosat are expected to remain principally owned by the government and remain dependent on central government approval for significant changes in operating policy or structure.

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[46] Sustained high levels of investment (40-60% of revenues) over a decade can result in per annum growth of over 15%, a quadrupling of lines, and a dramatic increase telephone line densities as evidenced by ITU "high achiever" countries. See World Telecommunication Development Report 1994 for case studies of countries such as Turkey, Korea and Chile. International Telecommunications Union, March 1994. Pages 81-88.

Control and coordination of Telkom, Indosat, and newly established telecom companies has not yet been structured into a formal regulatory framework, but the national government would be expected to play a significant role in any industry restructuring. Thus, the level of investment and support for accelerated telecommunications development remains tied to the commitment of Indonesia's central government which must divide its limited resources among significant competing national interests. At the central government level in Indonesia, telecommunications development (with the Palapa satellite system as an exception) has nearly always taken a back seat to other more politically urgent issues. Without consistent, high level government support, the centralization approach does not offer the most potential to rapidly expand public telecommunications services in Indonesia.

III. 2. Decentralization/regionalization and limited competition

Indonesia's large geographic scope and population size makes decentralization of public telecom services an attractive alternative for restructuring the industry. Dividing operations of public telecom services by geographic regions or particular telecom services offers greater possibilities for accelerating investment and telecom service expansion. In a regionalization scenario, Telkom would be established as a small and limited holding company to coordinate the interconnection and operation of regional companies providing exclusive telecom services in designated geographic regions. In return for exclusive rights to provide local service, regional operators would be required to meet local network expansion and service quality targets.

Telkom could initially continue as the sole long distance provider, which would simplify interconnection issues between the regional operators given the current weak regulatory structure in Indonesia. Schemes could also be established

to promote limited competition where beneficial. For instance, Telkom need not necessarily operate the telecom networks, but could possibly just resell services in competition with other private providers, especially where demand in particular locations or specific services would justify more than one provider. These telecom services need not be limited to long distance, but could flexibly include specialized market segments such as long distance, wireless and/or value-added services such as data communications or pay television. Further, large metropolitan areas could be designated as special zones for competitive services, to provide incentives to speed up the deployment of advanced services or to provide incentives for regional operators to meet their network expansion and service quality responsibilities.

The main advantage of this decentralization option is that it frees regional operators to independently seek investment capital based on the economic needs and prospects of the region. Instead of primarily relying on central government support and Telkom's own internal capital for generating necessary investment funds, regional operators would be encouraged to seek links with domestic and foreign investors in competitive negotiations. Similarly, a decentralized approach can help place existing domestic telecommunications talent and human resources where it would better serve Indonesia's long term telecom development interests. By using private and/or foreign firms to provide the bulk of network operations, for example, Telkom and Indosat could free up scarce, local telecommunications expertise to build a stronger planning and regulatory body. These human resources might better serve Indonesia's interests by coordinating and regulating more rapid telecom development and gradually opening the market to more private competition.

In a decentralized industry structure, less developed regions would be less able to generate local capital or attract outside investment, but on this issue the central government has no choice but to play a supporting and/or equalizing role.

Without support and coordination from the national government, Indonesia's lesser developed outer regions, such as Irian Jaya, will continue to have under-developed infrastructure and have difficulty promoting economic growth. As other regions, especially Java, grow more quickly, the widening infrastructure gap between "the haves" and "the have nots" will only increase already significant, political tensions and regional rivalries. Prudent leadership by Indonesia's telecom regulators to balance infrastructure growth can only help in this regard.

The proposed regional option presents also some of the same regulatory problems as experienced with regional monopolies in the U.S. and elsewhere. For instance, regulators often find difficulty in striking a balance on pricing or rates that are affordable for customers, but still provide adequate incentives for telecom companies to improve quality, become more efficient and expand the range of services available. Indonesia has not yet developed an extensive regulatory structure, but Indonesian regulators will face a difficult challenge in keeping up with rapidly changing market dynamics as telecommunications development progresses.

The Indonesian government would be well advised to develop a regulatory structure that would introduce more open competition and provide more market discipline, especially in specialized telecommunications markets. For instance, proposed regional operators could be motivated to provide effective and efficient local services by the prospect of added competition through alternative wireless technologies. Competition structured by appropriate regulation can guide more efficient and rapid expansion of network coverage, density and quality.

The realization of the benefits of more competition in telecom services (once thought to be natural monopolies) has come with moves to tap private sources of capital. Privatization initiatives, however, need not include more open competition. Indeed, this decentralization option offers greater opportunities to generate

development capital because the proposed, limited monopolies make regional and specialized service providers more financially viable and attractive to private investors. Consequently, decentralization and limited competition offers a higher potential to promote rapid telecom development provided an effective regulatory framework is in place.

III. 3. Privatization and/or more open competition

The wave of activities to promote privatization and competition in the U.S., U.K. and other countries in the 1980s has generated enthusiasm to restructure telecom sectors across the world. Faced with limited financial resources, governments have jumped on the privatization bandwagon with telecom monopolies as a favorite target because of their potential to spin large amounts of cash for governments and buyers alike. Some private investors and governments see privatization activities only as a method to milk state telecom companies as cash cows instead of financing new telecom development. The sustained commitment of the government is essential, however, if rapid telecom development is to occur.

Telecom privatization activities usually follow three general methods, but the variations in the last decade indicate that no one path is universally desirable. Privatization activities are usually shaped by the preferences of local governments and the degree of interest by potential investors. These three general methods are examined in the context of Indonesia's telecom development.

III. 3. i. Sale to strategic partners or majority share offering

New Zealand took this approach in 1990 by selling 100% of the state PTT through competitive bidding for U$2.5 billion. The winner, an international joint venture formed by American telephone operators Ameritech and Bell Atlantic, was granted a monopoly concession for a limited period in return for rapidly expanding the coverage, density and diversity of telecommunications services. By terms of the

contract, the joint venture was obligated to reduce their holdings to 50% through a mandated public offering by 1994. Meanwhile, the New Zealand government retained control of the venture through a special class of non-voting shares to protect national interests and ensure that the venture followed the terms of the contract.[47]

This arrangement has been successful by most accounts, but the New Zealand privatization was unusual in that no regulatory agency was created to oversee the process. Instead, the government relied on the provisions of the New Zealand Commerce Act for resolution of disputes in domestic courts. The New Zealand courts, however, have found that they are ill-equipped to handle specialized telecom issues, such as interconnection between competing carriers. Consequently, pressure is increasing to establish a regulatory body that would clearly define rules and principles for resolving telecom disputes between competitors.[48]

Indonesia has also employed a variation of the strategic sale approach by transferring the operations of the Palapa satellite system to Satelindo in 1993. Telkom previously operated Palapa since its inception in 1976, but the government decided to transfer the operation of the system to Satelindo (without any competitive bidding) in exchange for minority stakes in the company by Telkom and Indosat. This strategic transfer of state telecom assets and licenses has created another domestic telecom provider, but has also generated criticism for the lack of transparency and fairness in the privatization process.

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[47] Mustafa, M.A., "Methods of Sale of State-owned Telecommunications Enterprises", Telecommunication Journal, Volume 60-IX, 1993, Page 345.

[48] A private competitor to the former New Zealand PTT was launched by another international telecom consortium (MCI and Bell Canada) in November 1990. This new entrant, Clear Communications, faced the challenge of resolving complex interconnection arrangements with only broad commercial legislation as a guide to New Zealand courts. The resulting delay could have been avoided, however, had a regulatory body been established and principles for interconnection clearly defined before the introduction of competition. World Telecommunications Report 1994, International Telecommunications Union, March 1994, Pages 61-69.

Government officials see the Telkom and Indosat equity stakes as a way for the government-run companies to cash in on any Satelindo future profits, and perhaps moderate a gradual increase in industry competition. Supporters of the Palapa transfer also point out that Telkom has been freed from the responsibilities of operating and financing the satellite system, especially in light of the US$800 million satellite replacement activities currently underway. Yet, Telkom stands to lose about U$100 million in annual revenues from the Palapa system, even though it carried out most of the technical planning for the next generation of Palapa satellites.[49]

Meanwhile, Telkom and Indosat minority equity positions only give Telkom and Indosat uncertain control over Satelindo's management and also carry the risk of losses should Satelindo fail financially. Initially, Satelindo's corporate approval process required the support of 70% of shareholders, giving Telkom and Indosat a decisive voice with its 30% share. This controlling position has been thrown in doubt, however, as Satelindo agreed to sell a 25% stake to Deutsch Telkom for U$566 million in March 1995. Telkom's equity position has now been diluted to 22.5%, while Indosat now owns only 7.5%.[50]

III. 3. ii. Franchising or outsourcing

Indonesia has employed the Build, Operate and Transfer BOT concept for nearly a decade in its PBH programs and is now pursuing its KSO programs to outsource and franchise the installation and operation of basic telecom infrastructure. These programs, however, have differed in scale and scope

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[49] Borsuk, Richard, "Award of Control Indonesia Satellite Program to Suharto's Son Fuels Charges of Favoritism", Asian Wall Street Journal Weekly, April 19, 1993, Page 18.

[50] Borsuk, Richard, "German Firm Wins 25% Stake in Satelindo", Asian Wall Street Journal, March 22, 1995, Page 1. In response to these arguments, Indonesian officials claim that Telkom and Indosat hold special "Golden Shares", that give the Indonesian government special controlling rights. Borsuk, Richard, "Cable & Wireless is Disconnected from Satelindo", Asian Wall Street Journal, June 7, 1995, Page 1.

compared to franchising and outsourcing projects in other developing countries. In Thailand, for example, the government embarked in 1990 on a rapid expansion program to supply three million telephone lines over five year period. Unlike Indonesia, Thailand divided its three million line program into two relatively large awards of two million lines and one million lines with lengthy concessions periods of 25 years. Different concession terms were negotiated for the two million line project which is based in the more lucrative greater Bangkok area, while the one million project is located in less economically developed provincial areas.

As in other privatization approaches, the main considerations here are the total funds generated for investment and stable conditions for earning returns on this investment. The time period and revenue split of regional franchises are a function of the profit potential of the region. For instance, a highly populated region would tend to have a shorter franchise period than a rural region. Likewise, if conditions of regulatory or economic instability (e.g. for pricing) are expected, investors will seek higher returns in the form of exclusive long-term franchises.

The need for a well-developed and transparent regulatory framework to compensate for unstable political and economic conditions cannot be over-emphasized. The two Thailand concessions, for example, have been marked by charges of corruption and the installation of lines has been delayed in some areas by nearly two years. Originally, a single three million line concession was awarded to a local Thai company (Chareon Pokphand/Telecom Asia) with little telecom experience, but a change in Thai governments in 1992 resulted in a revised scheme of two concessions giving a substantial increase in revenue to the government. Conflicts of interests in Thailand's telecom regulatory body (which also acts as a

domestic telecom operator) and "dishonest and non-transparent methods" were cited by Thai Prime Minister Anand.[51]

In another example, India started a bidding process in March 1995 for relatively large scale, exclusive franchises to provide basic and cellular telephone service in 21 regional areas. The Indian scheme is dogged by a lack of transparency in the bidding requirements and rules tilted to favor the dominant state-owned operator, India's Department of Telecommunications (DOT). The Indian government has proposed to set up an independent regulatory body and turn the DOT into a commercial organization, but for now, the DOT is running the bidding process to protect its interests by imposing restrictive conditions such as requiring potential regional operators to use only DOT trunk lines to connect with other regions. Similarly, the DOT franchise selection criteria has purposely been concealed to allow "several points which can only be resolved by arbitrary decision at the political level."[52] The result is that franchisees will have only a marginal chance of operating profitably without resorting to political means to resolve uncertain rules and regulations.

III. 3. iii. Attract private financing to state-controlled entity

Indonesia has also employed this option to draw more international and domestic private capital into its telecom sector. With the launch of Indosat's October 1994 equity offering on the New York and Jakarta stock exchanges, Indonesia joined several other developing countries, such as Mexico and Chile, with telecom companies listed on the New York Stock Exchange. Like the Indosat offering, the Compania de Telefonos de Chile (CTC) and Telefonos de Mexico

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[51] Jolly, David, "Phone Funk: Thailand Moves To Upgrade Rural Network", Far Eastern Economic Review, July, 16, 1992, Page 55.
[52] McDonald, Hamish, "Hold the Phone: India's New Telecom Rules Disappoint Investors", Far Eastern Economic Review, May 4, 1995, Page 70-72.

(Telmex) IPOs were hugely successful, because of their dominant positions in the lucrative international or long distance segments of in their respective markets.[53] Consequently, the Indonesian government is preparing to launch a Telkom equity offering in late 1995 with hopes of another successful draw from international and domestic capital markets.[54]

Privatizing through equity offerings, however, is not without risk, especially in the absence of a developed regulatory framework and competitive industry structure. Five years after CTC and Telmex launched their IPOs, both national telecom companies now face risky futures and prospects of sharply reduced revenues as their monopolies end and competitors enter the market. For example, CTC shares on the New York Stock Exchange (once valued at more than 400% of its 1990 listing price) fell over 40% in value in February/March 1994 as the Chilean government moved to deregulate the long distance market and institute competitive rate structures.[55]

Although Indonesia has already introduced a sort of "managed competition" between Telkom, Indosat, Ratelindo and Satelindo and other private companies, the government's telecom regulatory plan and policy direction is vague. Indosat and Telkom will be challenged to convert the proceeds of their equity offering into infrastructure and services capable of producing future revenue gains in an increasingly competitive industry. Unless investors see the possibility of growing returns, Indosat and Telkom will find it difficult to raise private capital in future offerings. Investors expect that the proceeds of capital calls will be directed to

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[53] Indosat raised U$ 1.1 billion in the first international IPO by an Indonesian company by selling 35% shares in October 1994 on the New York and Jakarta stock exchanges.
[54] Telkom is expected to launch an IPO with simultaneous listings on the Jakarta, London and New York Stock Exchanges in late 1995. The IPO is expected to garner at least U$1 billion, but could raise as much as U$2.5-3 billion. Borsuk, Richard, "Indonesia Plans to List Telkom on 3 Markets", Asian Wall Street Journal, April 19, 1995, Page 1.
[55] Moffett, Matt, "Chilean Phone Firm's New Era of Competition Makes Many Investors Want to Disconnect", Wall Street Journal, May 31, 1994, Page C2.

expanding telecom networks, improving efficiency and increasing productivity. As a result, Telkom and Indosat are both expanding their operations. Telkom, in particular, is focusing on improving the call completion rate on its networks and reducing operating costs, thereby increasing profitability.

Despite the urgency to secure more private capital for future telecom development, the Indonesian government seems intent on using its telecom sector windfall as a slush fund for other purposes. The Indosat offering raised about U$1.1 billion, but only 41% of the company's public offering proceeds will be used to expand and upgrade its international services.[56] An undetermined portion was diverted to pay off Indonesian government debt. Likewise, at least part of the proceeds from the planned Telkom offering have been earmarked for similar purposes.[57] While the Indonesian government is under great pressure to hold the line on its increasing foreign debt, these funds would be put to better use by promoting more telecom development and, in turn, long term economic growth. The government should avoid the temptation to sacrifice funding for telecom development that can promote long term and balanced economic growth in favor short term political goals and patronage interests.

IV. Conclusion: Restructuring the Indonesian way, the optimal solution?

This paper has examined three general options of centralization, decentralization/regionalization, and privatization; with each option accompanied by various degrees of competition. These alternatives for restructuring Indonesia's public telecom services are not mutually exclusive. No single restructuring option presents the most attractive solution for every specific telecom market in Indonesia.

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[56] Chia, William, "Impeccable Credentials", Business Times (Singapore), April 22, 1995, Page EL3.
[57] Borsuk, Richard, "Four Banks Tipped to Snare Telkom Issue", Asian Wall Street Journal, April 11, 1995, Page 1.

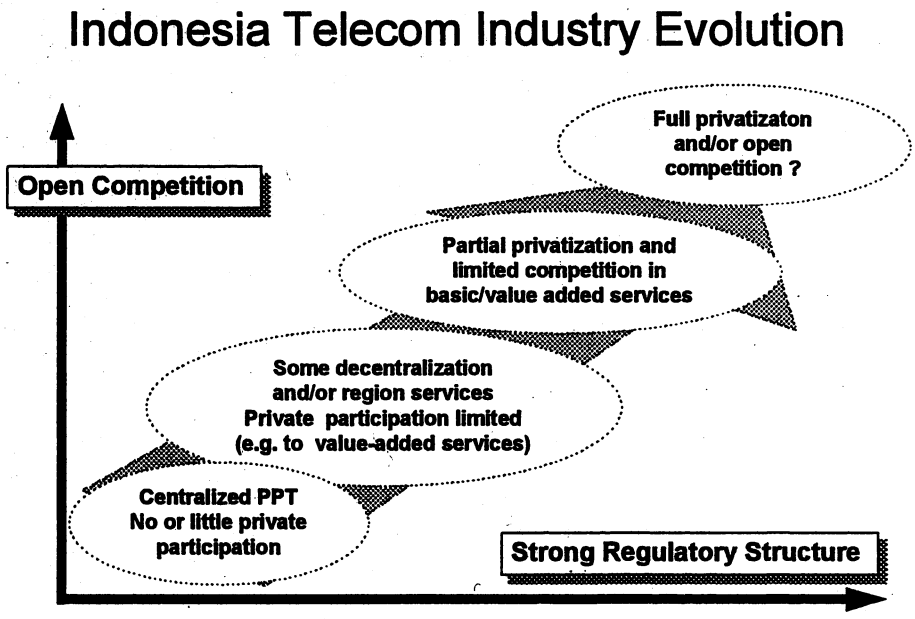
Indeed, the Indonesian government has combined these restructuring alternatives in multiple ways to adapt to local economic conditions and political preferences. Given rising demand for diverse telecom services and the unmet challenges of providing affordable access to basic telecom services, however, Indonesia must move beyond the incremental approach of the past to fundamentally restructure its telecom industry.

The option of privatization and more open competition offers Indonesia the highest potential to promote rapid telecom development provided an effective regulatory structure is in place. Indonesia has tried to forge a middle ground position of partial privatization and limited competition. The missing element in this formula has been the willingness to implement and execute a clear regulatory framework and sustained policy direction. The success of this framework will in large part be contingent on the transparent nature (i.e. without substantial political patronage and/or corruption) of the regulatory regime. The private sector can be a willing partner to provide financial and technical resources, but the government must lead structural reform of the industry to address four fundamental issues:

1. Increasing demand for basic and advanced services at affordable rates, especially outside of Indonesia's urban areas.
2. Limited financial resources
3. Scarce technical and managerial skills
4. Industry stability as private competition increases

It is essential that the government provide clear and consistent direction on these four issues and its role in the telecommunications sector. Indonesia's choices can be summarized as ranging along a spectrum offering varying degrees of

regulation, direct government involvement, and competition.



In the centralization (PPT) approach, the government takes a large direct role in the operation of telecom services, thus competition is limited and less explicit regulation is necessary as government-run telecom operators act as de-facto regulators. On the other end of the spectrum, the government is limited to a supervisory role in the industry, but a well-developed regulatory framework is necessary to promote competition among private operators and public service interests.

In the final analysis, the government has two main choices at opposite ends of the spectrum:

1. Maintain government owned or controlled companies backed by ample financial support. These companies would actively install and operate the country's telecom services.

2. Develop a strong regulatory framework and leave most telecom development and operations to the private sector.

Adopting and staying the course with either of these two choices will result in sustained telecom development.[58] Indonesia's policy makers are at a crossroads in deciding which of the two paths to follow, but the choice for Indonesia is clear. Lacking a sufficient quantity of technical, managerial and financial resources, Indonesia should focus on developing and implementing a strong policy and regulatory framework that provides incentives for rapid expansion of private telecom services and balances the interests of the consumers and the state.

[58] Countries which have achieved levels of telecom line growth and development have followed one of these two approaches. The critical element is the extent of political commitment to a sustained telecom development program. One measure of political commitment is the amount invested in the sector compared to other sectors in the economy. Countries that have achieved high levels of telecom network expansion invested at least 3.5% of Gross Domestic Investment in their telecom sector, e.g. Turkey, Korea, Malaysia. Indonesia invested 1.3% of Gross Domestic Investment in 1991, but clearly has increased this amount since 1991. Accelerated investment in telecom development, however, must be accompanied by coordinated national telecom policies and/or a strong regulatory framework. World Telecommunications Report 1994, International Telecommunications Union, March 1994, Pages 83-89.

Appendix 1 - Selected Telecommunications Development Projects in Indonesia

Project Name (Type)	Project Purpose	Equipment/Infrastructure Suppliers & Funding Sources	Project Terms	Project Start
Pola Bagi Hasil-1 or PBH-1 (Revenue Sharing)	Install 100,000 subscriber lines in Jakarta. Each company installs 20,000 lines.	PT Wahana Esa Sambadha PT Wahana Komunikatama PT Erakomindo Puranusa PT Bakrie & Brothers PT Elektrindo Nusantara	Revenue Sharing: Investors keep 70% outgoing calls. Telkom keeps 30% outgoing calls & 100% incoming calls. Period: 6-9 years	1989
Pola Bagi Hasil-2 or PBH-2 (Revenue Sharing)	Install 190,000 subscriber lines in Jakarta, Surabaya & Bandung	PT Telekomindo Prima Bhakti PT Gratika PT Astra Graphia	Revenue Sharing: Investors keep 70% outgoing calls. Telkom keeps 30% outgoing calls & 100% incoming calls. Period: 11.5 years	1991
Pola Bagi Hasil-3 or PBH-3 (Revenue Sharing)	Install 200,000 subscriber lines in Jakarta.	PT Wahana Esa Sambadha PT Wahana Komunikatama PT Erakomindo Puranusa PT Bakrie & Brothers PT Elektrindo Nusantara PT Telekomindo Prima Bhakti	Revenue Sharing: Investors keep 70% outgoing calls. Telkom keeps 30% outgoing calls & 100% of incoming calls. Period: 8-10 years. Telekomindo period 15 years; low revenue area served	1991
Sistem Telekomunikasi Digital Indonesia-I (STDI-I) Project	Manufacture and install digital exchanges and lines to support a total of 630, 000 lines.	Siemens/PT Inti German government		1985
Sistem Telekomunikasi Digital Indonesia-II (STDI-II) Project	Manufacture and install digital exchanges and lines to support a total of 350, 000 lines.	NEC PT Elektrindo Nusantara 45% - Bimantara Group headed by BambangTrihatmodjo (Suharto's second son)	U$174-252 million Equipment necessary for 193,000 lines imported built-up. The remainder assembled in Indonesia.	1991
Sistem Telekomunikasi Digital Indonesia-II (STDI-II) Project	Manufacture and install digital exchanges and lines to support a total of 350, 000 lines.	AT&T PT Citra Telekomunikasi 75% - Siti Hardijanti Rukmana (Suharto's eldest daughter) 25% - Sujatim "Timmy" Abdurachman Habibie (B.J. Habibie's younger brother)	U$193-298 million Equipment to provide 200,000 lines imported built-up. The remainder manufactured in Indonesia.	1991

Appendix 2 - Market Structure of Public Telecommunications Services in Indonesia

Market Structure	PUBLIC TELECOM SERVICES								
	Domestic							International	
	Fixed Line		Mobile				Data		
	Local	Long Distance	Paging	Analog Cellular	Digital (GSM) Cellular	Satellite		Mobile or Fixed Line	Satellite
	Duopoly	Duopoly	Oligopoly	Oligopoly	Duopoly	Monopoly	Monopoly	Duopoly	Monopoly
Main Operators	Telkom & multiple private firms in KOS/BOT concessions	Telkom	Multiple private operators in concessions Telkom	Multiple Telkom JVs See Appendix 3	Telkomsel	Satelindo	Lintasarta	Indosat	Pasifik Satelit Nusantara (PSN) & JV partners
	Ratelindo	Satelindo			Satelindo			Satelindo	
Comments	Ratelindo JV with Telkom to provide fixed wireless service			2 cellular JVs affiliated with Satelindo parent, Bimantara Citra	Telkomsel is a JV between Telkom & Indosat				PSN affiliated with Satelindo parent, Bimantara Citra

Appendix 3 - Mobile Voice (Cellular) Operations in Indonesia

Operators (Equip. Supplier)	Ownership	Launch Date	System Operations (System Type)	Subscribers as of Nov. 1993 (System Capacity)
P.T. Telkom & P.T. Inti	Government of Indonesia	1985-1990	STKB-Multizone, Jakarta & Batam, (900 MHz Modified TACS)	3000 (3,500)
P.T. Telkom P.T. Rajasa (Ericsson)	Gov't of Indonesia	1986-1993 in 3 phases	STKB-C (Cellular), Jakarta/Bandung, (NMT-450/NMT-470)	16,000 (30,000)
P.T .Elektrindo Nusantara P.T. Telkom (Motorola)	Bimantara Citra Group Gov't of Indonesia	Nov. 1991	STKB-N (National) Jakarta/Bandung, Medan, Ujung Pandang (AMPS-800)	17,000 (34,500)
P.T.Telkom P.T.Centralindo Pancasakti (Motorola)	Gov't of Indonesia	July 1991	STKB-N (National), Surabaya/Malang, Semarang/Solo, Yogyakarta (AMPS)	4,400 (9,000)
P.T. Telkom P.T. Telekomindo (Motorola)	Gov't of Indonesia Bimantara Citra Group	Jan. 1993	STKB-N (National), East Kalimantan, Bali, Sumatra, (AMPS)	300 (7,800)
PT Satelindo (Alcatel)	45% - Bimagraha Telekomindo (Bimantara Citra) 25% Deutsche Telekom 22.5% - P.T. Telkom 7.5% - P.T. Indosat	1994	Digital Cellular, 18 cities starting with Jakarta (GSM)	(350,000 planned)
Telkom (Ericsson, Siemans, PT Inti)	Government of Indonesia	1994	Digital Cellular, Batam & Bintan (GSM)	(3,200 initially) (10,000 planned)
PT Ratelindo (Hughes)	55% - P.T. Bakerie Electronics 45% - Telkom	1994	Digital Fixed Cellular, Jakarta (TDMA)	(50,000 initially) (280,000 planned)

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